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ATTORNEY WORK PRODUCT

INGREDIENTS AND PESTICIDES

During the past year, the plaintiffs in the liability cases have begun to make claims based on the fact that the companies add ingredients other than tobacco to the cigarettes and that cigarettes contain minute residues of the pesticides used in the agricultural, and (some contend) manufacturing, processes used to grow and store tobacco. (These issues were not tried in Cipollone because we were able to convince the Court that Edell's last minute effort to do so was too late. By contrast, the issue of ingredients and pesticide residues was central to the Horton case in Mississippi against American which resulted in a hung jury.)

At the same time, there have been a number of proopsals in Congress that regulation of ingredients and pesticide residues by some agency of the federal government would be one way to curtail the industry. For example, the Whittaker bill (H.R. 3294) would give the Secretary of Health and Human Services the authority to ban any additive which is "unsafe and presents unnecessary increased risks to health" as determined by the Secretary with "the advice of experts qualified by

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scientific training and experience to evaluate the safety of tobacco additives."

As described below, these efforts of the tort plaintiffs and the Congress to fasten liability or additional regulation on the industry generally ignore the fact that the ingredients and pesticide residues in cigarette smoke are present in such minute amounts that they do not pose any health hazard.

A. INGREDIENTS

The Scientific Background

There is nothing new in the fact that cigarette manufacturers add various ingredients to their products. Ingredients have been added to tobacco to influence its flavor since the Indians first introduced smoking to the European explorers. The manufacturers use such ingredients for a variety of purposes:

-- Casings and humectants are added to replace sugars lost during the curing of the leaf, to help tobacco retain moisture, to aid in processing, and to make a smoother, milder smoke. These ingredients include various foods, or ingredients approved for food use, such as sugars, corn syrup, glycerol and propylene glycol.

-- Flavor ingredients are added to fortify natural tobacco flavors and to produce special flavors

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such as vanilla or menthol. Again, these flavor additives include natural food products or ingredients approved for use in food products.

-- Various processing aids are used to adjust nicotine content among different crops of tobacco (ammonia) or to expand tobacco (carbon dioxide). The residues of such processing aids are extremely small, however, because the very process in which they are used expends them long before the tobacco is made into cigarettes.

The use of such ingredients in cigarettes is generally premised on their long use in foods without adverse effects. This has been the approach not only of the tobacco industry in the United States, but also of regulatory agencies in other countries such as the Hunter Committee in England. While there are obvious differences between the use of additives in a product which is eaten and one which is smoked, the long history of the safe use of these products in food is evidence that the use of the same ingredients in cigarettes -- particularly in the minute amounts in which they are used -- does not constitute a serious health concern.

In response to the likely criticism that the industry has not biologically tested every ingredient used in cigarettes, we can emphasize that many of the 20 or so "major use" items which account for the vast

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majority of all ingredients added to cigarettes (about 90% by weight) -- humectants, sugars, sweeteners, and processing aids -- are included in the Kentucky reference cigarettes which have been used in inhalation and skin-painting studies. Thus, all of the biological testing conducted on such reference cigarettes in effect constitutes testing of the major use ingredients as well. None of that testing has demonstrated that the inhalation of such minute quantities of the additives -- with or without the accompanying tobacco smoke -- produces lung cancer.

The remaining flavor ingredients (special flavors, etc.) are used in such minute quantities that they are virtually undetectable in the content of cigarette smoke. To date, there has never been any evidence in any of the government's research or the "expert" opinion presented in any of the litigation that the addition of these minute amounts of such flavors changes the overall composition -- much less the carcinogenicity -- of the smoke.

The tobacco industry in general, and Philip Morris in particular, have acted responsibly with respect to the use of ingredients. Although we have not tested every ingredient in a separate smoke inhalation test, Philip Morris scientists have reviewed any literature on the possible toxicological effect of the

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ingredients and have tested the major use items for biological activity through Ames tests (which look for mutagenic changes in bacteria). Neither these tests, nor any test conducted by any outside party, have demonstrated that any of the ingredients Philip Morris currently uses constitutes a health hazard.

Finally, it should be noted that, over the years, the cigarette companies -- like food processers and others who use various ingredients -- have decided to remove certain ingredients from their products in response to possible health concerns. Coumarin -- an ingredient found in many foods and cosmetics -- is one such example. This is not to say, however, that Philip Morris or the other companies concede that the minute amounts of coumarin that had been used in cigarettes were harmful. Philip Morris was simply acting responsibly, along with the other companies, in eliminating coumarin from its products following reports that large amounts of coumarin might be toxic based on some animal experiments.

The Disclosure Issue

Although Philip Morris and the other cigarette companies closely guard their precise flavor formulas, the public has long been aware that cigarettes contain many ingredients in addition to tobacco. The use of

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such additives has been publicly discussed in patents which have been issued for various flavors, a 1953 report in Consumer Reports describing cigarette flavorings and casings, a 1959 article in Reader's Digest on cigarette manufacture, comments in the 1964 and subsequent Surgeon General Reports, and the comprehensive 1972 Leffingwell text, Tobacco Flavoring for Smoking Products. The last source -- a book written by a Reynolds' scientist with that company's assistance -- contained comprehensive listings of the flavorings used in tobacco products (although it, of course, did not disclose the formulas used in any specific Reynolds product).

The efforts of Philip Morris and other companies to protect their formulas from disclosure -- like the efforts of the flavor houses to protect the ingredients in their proprietary flavors -- is not part of any attempt to mislead or deceive the public. Rather, it merely reflects the importance of this information and the fact that there is no other legal protection for the particular combination of ingredients used in a particular product. In this respect, the cigarette industry is no different from any other industry which uses ingredients (e.g. the famous Coca-Cola formula).

Philip Morris has likewise complied with all efforts of the governments of a number of nations to

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review its use of ingredients. Specifically, Philip Morris follows the list of improved ingredients established by the Hunter Committee in England and the West German health authorities.

Similarly, since 1985 Congress has required Philip Morris and the other American cigarette companies to submit to HHS a combined list of all ingredients they use. That list has been updated annually since that first submission. While the combined list protects the precise list of ingredients used by any one company and the formulas for any one brand, it does advise HHS of the identity of all the ingredients used by all of the companies and thus would flag any potential danger.

Indeed, the cigarette ingredient list submitted to HHS is far more detailed a list of "ingredients" than the lists published by other manufacturers because the cigarette list breaks down the products added by the manufacturers into their respective constituents. It should thus be emphasized that while the HHS list totals more than 700 "ingredients", the tobacco companies do not add that many items as such. Rather, the industry adds a far smaller number of products (most notably, the proprietary flavors of various flavor houses) which in turn are made from many other constituents. As a result, many items on the HHS list are "used" in only

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trace amounts -- as little as one pound for the annual production of the entire industry.

For example, Philip Morris may use one pound of a certified food flavor made by an outside flavor house -- Vanilla No. 6 -- in processing ten thousand pounds of tobacco, just as a food manufacturer might use one pound of the same Vanilla No. 6 in producing a hundred pounds of cake mix. Philip Morris has determined, and in turn has advised HHS, that that one pound of Vanilla No. 6 is composed of twelve ounces of vanilla beans, three ounces of vanilla extract, one-half ounce of 3-Ethoxy-4-hydroxy-1-benzaldehyde (vanillin), and trace amounts of 10 other exotic sounding, but quite harmless, constituents.[1] Philip Morris lists each of those trace ingredients on its contribution to the combined industry list. But such detailed constituent information has never even been determined by the food manufacturer, much less conveyed to any government authority.

HHS, in turn, submitted the list of tobacco ingredients to the Office on Smoking and Health (OSH).

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[1] This, of course, is just a hypothetical. In any testimony we should emphasize that, even within the companies, the HHS list is only available on a need-to-know basis. More importantly, the list of ingredients used in any particular Philip Morris brand is available to only a handful of Philip Morris employees; and no one person has ready access to the complete formula in terms of both the identity of the ingredients and the quantities used.

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Although OSH has had the list for more than two years, they have not criticized any of the items on it. This is further evidence that there is no imminent health hazard from the use of ingredients which requires any additional government regulation.

B. PESTICIDES

It has long been known that there are pesticides residues in cigarette tobacco -- just as there are pesticide residues in virtually all of the food that we eat. Such residues necessarily result from the agricultural use of pesticides in the field. Because many of the pesticides are systemic -- that is, they are taken up through the roots of the plant into the leaves -- there is no way to eliminate such minute residues from tobacco or other food products. (Indeed, some pesticides are so stable that they transfer from one agricultural product to another: One can find residues of pesticides in milk and beef that result from the treatment of seeds to grow the corn that fed the cattle.) Pesticides are thus part of our daily diet (as well as the air we breathe).

At the same time, it is important to note that the use of these pesticides is closely regulated by the federal government. Since at least the late 1940s, the Department of Agriculture and then the Environmental

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Protection Agency have maintained an approved list of registered pesticides. In order to obtain such a registration, the pesticide manufacturer must demonstrate that its pesticide is safe and effective for use on the particular crop for which it is to be registered.

The government similarly promulgates regulations and provides practical advice as to how pesticides are to be used by a farmer. In order to participate in the government's price support program, tobacco farmers must certify that they have complied with these regulations both with respect to the type of pesticide used and the manner in which it was applied.

In addition to this program of government enforcement, the tobacco industry has, for 20 years, funded the efforts of North Carolina State University in monitoring pesticide residues both in warehouse inventories and finished cigarettes. The reports of N.C. State, which have been published annually, demonstrate that the amount of pesticide residues in tobacco -- like pesticide residues in the food supply in general -- have declined over the years.

There is no persuasive scientific evidence that the amount of pesticide residues in tobacco constitutes a health hazard. First, it is clear that the amount of pesticides in tobacco are not inordinately high. Even

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in the 1950s, when pesticide residues were far greater than they are today, an independent study cited by the Surgeon General reported that the amount of pesticides that would be inhaled by a smoker consuming 2½ packs of cigarettes a day was only about 1/10 the amount that he would inhale simply by breathing the air of New York City.

Finally, it should be noted that the only significant study to ascertain the possible effect of pesticide residues in cigarette tobacco concluded that they had no harmful effect. As part of the federal government's Tobacco Working Group research, cigarettes made from specially-grown pesticide-free tobacco were compared with Kentucky-reference cigarettes -- which had the normal amount of pesticide residues -- in a mouse skin-painting experiment. The research concluded that there was no difference in the biological activity of the condensate.

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